# ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

NPDES regulations at 40 CFR §122.48 require that all NPDES permits specify monitoring and reporting requirements. CWC sections 13267 and 13383 also authorize the Regional Water Board to require technical and monitoring reports. This Monitoring and Reporting Program (MRP) establishes monitoring and reporting requirements that implement the federal and State regulations.

## I. GENERAL MONITORING PROVISIONS

A. The Dischargers shall comply with the MRP for this Order as adopted by the Regional Water Board, and with all of the requirements contained in Self-Monitoring Program, Part A, adopted August 1993 (SMP, Attachment G). If any discrepancies exist between the MRP and SMP, the MRP prevails.

B. Sampling is required during the entire year when discharging. All analyses shall be conducted using current USEPA methods, or that have been approved by the USEPA Regional Administrator pursuant to 40 CFR 136.4 and 40 CFR 136.5, or equivalent methods that are commercially and reasonably available, and that provide quantification of sampling parameters and constituents sufficient to evaluate compliance with applicable effluent limits and to perform reasonable potential analysis. Equivalent methods must be more sensitive than those specified in 40 CFR 136, must be specified in the permit, and must be approved for use by the Executive Officer, following consultation with the State Water Quality Control Board's Quality Assurance Program.

C. Sampling and analysis of additional constituents is required pursuant to Table 1 of the Regional Water Board's August 6, 2001 Letter titled Requirement for Monitoring of Pollutants in Effluent and Receiving Water to Implement New Statewide Regulations and Policy.

D. *Minimum Levels.* For compliance and reasonable potential monitoring, analyses shall be conducted using the commercially available and reasonably achievable detection levels that are lower than the WQOs/WQC or the effluent limitations, whichever is lower. The objective is to provide quantification of constituents sufficient to allow evaluation of observed concentrations with respect to the Minimum Levels given below. All Minimum Levels are expressed as µg/L approximately equal to parts per billion (ppb).

Table E-1 lists the test method the Dischargers may use for compliance and reasonable potential monitoring for the pollutants with effluent limits.

**Table E-1. Test Methods and Minimum Levels for Pollutants with Reasonable Potential**

| CTR # | Constituent | Types of Analytical Methods[1] Minimum Levels (µg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | GC | GCMS | LC | Color | FAA | GFAA | ICP | ICP MS | SPG FAA | HYD RIDE | CVAF | DCP |
| 6 | Copper | | | | | | | | 0.5 | 2 | | | |
| 8 | Mercury[2] | | | | | | | | | | | 0.0005 | |
| 9 | Nickel | | | | | 20 | 5 | 20 | 1 | 5 | | | |
| 10 | Selenium[3] | | | | | | 5 | | 2 | 5 | 1 | | |
| 14 | Cyanide | | | | 5 | | | | | | | | |

| CTR # | Constituent | Types of Analytical Methods[1] Minimum Levels (µg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | GC | GCMS | LC | Color | FAA | GFAA | ICP | ICP MS | SPG FAA | HYD RIDE | CVAF | DCP |
| 68 | Bis(2-ethylhexyl)phthalate | | 5 | | | | | | | | | | |
| 110 | 4,4-DDD | 0.05 | | | | | | | | | | | |
| 117 | Heptachlor | 0.01 | | | | | | | | | | | |
| | Dioxin-TEQ[4] | ½ USEPA 1613 specified MLs | | | | | | | | | | | |

(1) Analytical Methods / Laboratory techniques are defined as follows:
GC = Gas Chromatography;
GCMS = Gas Chromatography/Mass Spectrometry;
Color = Colorimetric;
GFAA = Graphite Furnace Atomic Absorption;
ICPMS = Inductively Coupled Plasma/Mass Spectrometry;
SPGFAA = Stabilized Platform Graphite Furnace Atomic Absorption (i.e. USEPA 200.9); and
CVAF = Cold Vapor Atomic Fluorescence.

(2) The Dischargers shall use ultra-clean sampling (USEPA Method 1669) and ultra-clean analytical methods (USEPA method 1631) for mercury monitoring, which specifies a ML of 0.5 ng/L or 0.0005 µg/L.

(3) Hydride or ICPMS (with helium collision cell) are preferable because they are less subject to positive interferences.

(4) The Dischargers shall achieve MLs for Dioxin-TEQ using ½ the MLs specified in USEPA method 1613.

## II. MONITORING LOCATIONS

The Dischargers shall establish the following monitoring locations to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Order:

**Table E-2. Description of Monitoring Stations**

| Discharge Point Name | Monitoring Location Name | Monitoring Location Description |
|---|---|---|
| influent | A-001 | At any point in the WCWD plant headworks at which all waste tributary to the treatment system is present, and preceding any phase of treatment. |
| influent | A-002 | At any point in the Richmond plant headworks at which all waste tributary to the treatment system is present, and preceding any phase of treatment. |
| effluent | E-001-D1 | At any point in the WCWD outfall following chlorination, but prior to combining with Richmond plant effluent. |
| effluent | E-001-D2 | At any point in the Richmond outfall following chlorination but prior to combining with WCWD effluent. |
| effluent | E-001 | At any point in the combined outfall |
| effluent | E-001-DC | At any point in the combined outfall following dechlorination. |
| sludge | B-001 | Sludge monitoring at the WCWD plant. |
| sludge | B-002 | Sludge monitoring at the Richmond plant. |

## III. INFLUENT MONITORING REQUIREMENTS

A. The Dischargers shall monitor the influent to the facility at A-001 and at A-002 as specified in Table E-3:

**Table E-3. Influent Monitoring Requirements for Conventional Pollutants**

| Parameter | Units | Sample Type | Minimum Sampling Frequency | Monitoring Location |
|---|---|---|---|---|
| Flow Rate[1] | MGD | Continuous | Daily | A-001 & A-002 |
| $BOD_5$ | mg/L | C-24 | 3/Week | A-001 & A-002 |
| $BOD_5$ | kg/d | Calculated | 3/Week | A-001 & A-002 |
| TSS | mg/L | C-24 | 3/Week | A-001 & A-002 |
| TSS | kg/d | Calculated | 3/Week | A-001 & A-002 |

Legend: C-24: 24-hour composite

[1] Influent flows shall be monitored continuously and the following shall be reported in monthly self-monitoring reports: average, maximum and minimum daily flows

Influent monitoring identified in the table above is the minimum required monitoring. Additional sampling and analyses may be required in accordance with Pretreatment Program or Pollution Prevention/Source Control Program requirements (see Section IX.A below).

## IV. EFFLUENT MONITORING REQUIREMENTS

### A. Effluent Monitoring Requirements

The Dischargers shall monitor treated wastewater at as specified in Table E-4 below:

**Table E-4. Schedule of Sampling, Measurement, and Analysis**

| Parameter | Units | Sample Type | Minimum Sampling Frequency | Monitoring Location |
|---|---|---|---|---|
| Flow Rate[1] | MGD | Continuous | 1/Day | E-001 |
| pH | pH units | Grab | 3/Week | E-001-D1&D2 |
| Temperature | °C | Grab | 3/Week | E-001-D1&D2 |
| Dissolved Oxygen | mg/L | Grab | 3/Week | E-001-D1&D2 |
| Ammonia Nitrogen[3] | mg/L | Grab | 1/Month | E-001-DC |
| BOD (5-day @ 20°C)[2] | mg/L | C-24 | 3/Week | E-001-D1&D2 |
| Total Suspended Solids[2] | mg/L | C-24 | 1/Day | E-001-D1&D2 |
| Oil and Grease[3] | mg/L | Grab | 2/Month | E-001-D1&D2 |
| Total Coliform[4] | MPN/100 ml | Grab | 3/Week<br>5/Week | E-001-D1<br>E-001-D2 |
| Chlorine, Total Residual | mg/L | Continuous | 1 / 2 Hours | E-001-DC |
| Acute Toxicity | % survival | C-24 | 1/Month | E-001-DC |
| Chronic Toxicity[5] | $TU_c$ | C-24 | 1/Quarter | E-001-DC |
| Copper | µg/L | C-24 | 1/Month | E-001-DC |
| Cyanide[3] | µg/L | Grab | 1/Month | E-001-DC |
| Mercury[6] | µg/L and kg/month | Grab | 1/Month | E-001-DC |
| Nickel | µg/L | C-24 | 1/Month | E-001-DC |
| Selenium | µg/L | C-24 | 1/Month | E-001-DC |
| Bis(2-ethylhexyl)phthalate | µg/L | Grab | 1/Month | E-001-DC |
| 4,4-DDD | µg/L | C-24 | 2/Year | E-001-DC |

| Parameter | Units | Sample Type | Minimum Sampling Frequency | Monitoring Location |
|---|---|---|---|---|
| Heptachlor | µg/L | C-24 | 2/Year | E-001-DC |
| Dioxin-TEQ(7) | µg/L | Grab | 2/Year (1/Wet, 1/Dry Season) | E-001-DC |
| Standard Observations | -- | -- | 1/Month | E-001-D1&D2 |
| Remaining Priority Pollutants | µg/L | Grab(8) | 2/5 Years (1/Wet, 1/Dry Season) | E-001-DC |

Legend: C-24: 24-hour composite

(1) Effluent flows shall be monitored continuously and the following shall be reported in monthly self-monitoring reports: average, maximum and minimum daily flows;

(2) The percent removal for BOD and TSS shall be reported for each calendar month.

(3) Each sampling event shall consist of a composite sample comprised of three grab samples taken at equal intervals during the sampling date, with each grab sample being collected in an appropriate container and appropriately preserved. For oil and grease, each glass container used for sample collection or mixing shall be thoroughly rinsed with solvent rinsings as soon as possible after use, and the solvent rinsings shall be added to the composite sample for extraction and analysis. Grab samples for ammonia and cyanide may also be composited following appropriate laboratory practices prior to analysis.

(4) When replicate analyses are made of a coliform sample, the reported result shall be the arithmetic mean of the replicate analysis sample.

(5) Critical Life Stage Toxicity Test shall be performed and reported in accordance with the Chronic Toxicity Requirements specified in Sections V.B of the MRP. Note that accelerated monitoring required in Section V.B of the MRP is required to occur on a monthly basis.

(6) Mercury: The Dischargers may, at their option, sample effluent mercury either as grab or as 24-hour composite samples.

(7) Chlorinated dibenzodioxins and chlorinated dibenzofurans shall be analyzed using the latest version of USEPA Method 1613.

(8) Per August 6, 2001 Regional Water Board letter.

## V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

The Dischargers shall monitor acute and chronic toxicity at E-001-DC as follows:

### A. Whole Effluent Acute Toxicity

1. Compliance with the acute toxicity effluent limitations of this Order shall be evaluated by measuring survival of test organisms exposed to 96-hour continuous flow-through bioassays.

2. Test organisms shall be fathead minnow.

3. All bioassays shall be performed according to the most up-to-date protocols in 40 CFR Part 136, currently in "Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms," 5th Edition.

4. Effluent used for fish bioassays must be dechlorinated prior to testing. Monitoring of the bioassay water shall include, on a daily basis, the following parameters: pH, dissolved oxygen, ammonia (if toxicity is observed), temperature, hardness, and alkalinity. These results shall be reported. If a violation of acute toxicity requirements occurs or if the control fish survival rate is less than 90 percent, the bioassay test shall be restarted with

new batches of fish and shall continue back to back until compliance is demonstrated.

**B. Whole Effluent Chronic Toxicity**

1. Chronic Toxicity Monitoring Requirements

   a. *Sampling.* The Dischargers shall collect 24-hour composite samples of the effluent in accordance with the frequency specified in the table above, for critical life stage toxicity testing as indicated below. For toxicity tests requiring renewals, 24-hour composite samples collected on consecutive days are required.

   b. *Test Species. Haliotis rufescens.*

   c. *Methodology.* Sample collection, handling and preservation shall be in accordance with USEPA protocols. In addition, bioassays shall be conducted in compliance with the most recently promulgated test methods, as shown in Appendix E-1. These are "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms," currently third edition (EPA-821-R-02-014), and "Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms," currently fourth Edition (EPA-821-R-02-013), with exceptions granted the Dischargers by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP).

   d. *Dilution Series.* The Dischargers shall conduct tests at 100%, 75%, 50%, 25%, and 12.5%. The "%" represents percent effluent as discharged.

2. Chronic Toxicity Reporting Requirements

   a. *Routine Reporting.* Toxicity test results for the current reporting period shall include, at a minimum, for each test:

      i. Sample date(s)
      ii. Test initiation date
      iii. Test species
      iv. End point values for each dilution (e.g. number of young, growth rate, percent survival)
      v. NOEC value(s) in percent effluent
      vi. IC15, IC25, IC40, and IC50 values (or EC15, EC25 ... etc.) in percent effluent
      vii. TUc values (100/NOEC, 100/IC25, or 100/EC25)
      viii. Mean percent mortality (±s.d.) after 96 hours in 100% effluent (if applicable)
      ix. NOEC and LOEC values for reference toxicant test(s)
      x. IC50 or EC50 value(s) for reference toxicant test(s)
      xi. Available water quality measurements for each test (pH, D.O., temperature, conductivity, hardness, salinity, ammonia)

   b. *Compliance Summary.* The results of the chronic toxicity testing shall be provided in the next self-monitoring report and shall include a summary table of chronic

toxicity data from at least three of the most recent samples. The information in the table shall include items listed above under 2.a, specifically, item numbers i, iii, v, vi (IC25 or EC25), vii, and viii.

3. Chronic Toxicity Reduction Evaluation (TRE)

   a. *Generic TRE Work Plan.* To be prepared for responding to toxicity events, the Dischargers shall prepare a generic TRE work plan within 90 days of the effective date of this Order. The Dischargers shall review and update their work plans as necessary to remain current and applicable to the discharge and discharge facilities.

   b. *Specific TRE Work Plan.* Within 30 days of exceeding either trigger for accelerated monitoring, the Discharge shall submit to the Regional Water Board a TRE work plan, which should be the generic work plan revised as appropriate for this toxicity event after consideration of available discharge data.

   c. *Initiate TRE.* Within 30 days of the date of completion of the accelerated monitoring tests observed to exceed either trigger, the Dischargers shall initiate a TRE in accordance with a TRE work plan that incorporates any and all comments from the Executive Officer.

   d. The TRE shall be specific to the discharge and be in accordance with current technical guidance and reference materials, including USEPA guidance materials. The TRE shall be conducted as a tiered evaluation process, such as summarized below:

      i. Tier 1 consists of basic data collection (routine and accelerated monitoring).
      ii. Tier 2 consists of evaluation of optimization of the treatment process, including operation practices and in-plant process chemicals.
      iii. Tier 3 consists of a toxicity identification evaluation (TIE).
      iv. Tier 4 consists of evaluation of options for additional effluent treatment processes.
      v. Tier 5 consists of evaluation of options for modifications of in-plant treatment processes.
      vi. Tier 6 consists of implementation of selected toxicity control measures, and follow-up monitoring and confirmation of implementation success.

   e. The TRE may be ended at any stage if monitoring finds there is no longer consistent toxicity (complying with Effluent Limitations Section IV.6.a).

   f. The objective of the TIE shall be to identify the substance or combination of substances causing the observed toxicity. All reasonable efforts using currently available TIE methodologies shall be employed.

   g. As toxic substances are identified or characterized, the Dischargers shall continue the TRE by determining the source(s) and evaluating alternative strategies for reducing or eliminating the substances from the discharge. All reasonable steps shall be taken

to reduce toxicity to levels consistent with chronic toxicity evaluation parameters.

h. Many recommended TRE elements parallel required or recommended efforts of source control, pollution prevention and storm water control programs. TRE efforts should be coordinated with such efforts. To prevent duplication of efforts, evidence of complying with requirements or recommended efforts of such programs may be acceptable to comply with TRE requirements.

i. The Regional Water Board recognizes that chronic toxicity may be episodic and identification of causes of and reduction of sources of chronic toxicity may not be successful in all cases. Consideration of enforcement action by the Regional Water Board will be based in part on the Dischargers' actions and efforts to identify and control or reduce sources of consistent toxicity.

## VI. LAND DISCHARGE MONITORING REQUIREMENTS

(Not applicable)

## VII. RECLAMATION MONITORING REQUIREMENTS

(Not applicable)

## VIII. RECEIVING WATER MONITORING REQUIREMENTS

### A. Regional Monitoring Program (RMP)

The Dischargers shall continue to participate in the Regional Monitoring Program, which involves collection of data on pollutants and toxicity in water, sediment and biota of the Estuary. The Dischargers' participation and support of the RMP is used in consideration of the level of receiving water monitoring required by this Order. With each annual self-monitoring report, the Dischargers shall document how they comply with Receiving Water Limitation V.A. This may include using discharge characteristics (e.g., mass balance with effluent data and closest RMP station), receiving water data, or a combination of both.

## IX. OTHER MONITORING REQUIREMENTS

### A. Pretreatment Requirements

The Dischargers shall comply with the pretreatment requirements as specified in Table E-6 for influent stations A-001 and A-002, effluent stations E-001-D1 and E-001-D2, and sludge stations B-001 and B-002:

**Table E-6. Pretreatment Program Monitoring Requirements**

| Constituents | Location and Frequency | | | Required Test Methods |
|---|---|---|---|---|
| | Influent | Effluent | Biosolids | |
| VOC [1] | 2/Y | 2/Y | 2/Y | 624 |
| BNA [1] | A | A | 2/Y | 625 |
| Hexavalent Chromium [2] | M | M | 2/Y | Standard Methods 3500 |
| Metals [3] | M | M | 2/Y | GFAA, ICP, ICP-MS |
| Mercury [4] | M | M | 2/Y | EPA 245, 1631 |
| Cyanide [4] | M | M | 2/Y | Standard Methods 4500-CN C or I |

Legend:

A = once each calendar year
M = once each month
Q = once each quarter
2/Y= each calendar year (at about 6 month intervals, once in the dry season, once in the wet season)
VOC = volatile organic compounds
BNA = base/neutrals and acids extractable organic compounds

Footnotes for Table E-6:

[1] GC/MS methods used must be able to quantify to an equivalent level as applicable GC methods (EPA 601, 602, 603, 604, 606).
[2] Total chromium may be substituted for hexavalent chromium at the Dischargers' discretion.
[3] The parameters are arsenic, cadmium, selenium, copper, lead, mercury, nickel, silver, zinc, and total chromium (if the Dischargers elect to substitute total chromium for hexavalent chromium).
[4] Influent and effluent monitoring conducted per Tables E-3, E-4, and E-5 can be used to satisfy these pretreatment program sampling requirements and vice versa.

### B. Sludge Monitoring (B-001 and B-002)

The Dischargers shall continue to analyze sludge on a semi-annual basis prior to disposal for selected priority pollutant metals and organics. Specific requirements for monitoring shall be commensurate with the disposal location, expected to be a landfill during the permit term.

## X. LEGEND FOR MRP TABLES

Types of Samples

| | | |
|---|---|---|
| C-24 | = | composite sample, 24 hours (includes continuous sampling, such as flows) |
| C-X | = | composite sample, X hours |
| G | = | grab sample |

| Frequency of Sampling | | | Parameter and Unit Abbreviations | | |
|---|---|---|---|---|---|
| Cont. | = | Continuous | BOD | = | Biochemical Oxygen Demand |
| Cont/D | = | Continuous monitoring & daily reporting | D.O. | = | Dissolved Oxygen |
| H | = | once each hour (at about hourly intervals) | Est V | = | Estimated Volume (gallons) |
| W | = | once each week | Metals | = | Multiple metals |
| 2/W | = | twice each week | PAHs | = | Polycyclic Aromatic Hydrocarbons |
| 4/W | = | four times each week | TSS | = | Total Suspended Solids |
| M | = | once each month | MGD | = | million gallons per day |
| Q | = | once each calendar quarter (at about three month intervals) | mg/L | = | milligrams per liter |
| 1/Y | = | once each calendar year | mL/L-hr | = | milliliters per liter, per hour |
| 2/Y | = | twice each calendar year (at about 6 months intervals, once during dry season, once during wet season) | µg/L | = | micrograms per liter |
| | | | ng/L | = | nanograms per liter, 1 ng/L= $10^{-3}$ µg/L |
| | | | kg/d | = | kilograms per day |
| | | | kg/mo | = | kilograms per month |
| | | | MPN/100 mL | = | Most Probable Number per 100 milliliters |

## XI. Modifications to Part A of Self-Monitoring Program

Section C.2.h of Part A shall be amended as follows:

h. When any type of bypass occurs, except for bypasses that are consistent with Prohibition III.C of this Order, composite samples shall be collected on a daily basis for constituents at all affected discharge points that have effluent limits for the duration of the bypass.

When bypassing occurs from any treatment process (primary, secondary, chlorination, dechlorination, etc.) in the Facility that is consistent with Prohibition III.B of this Order during high wet weather inflow, the self-monitoring program shall include the following sampling and analysis in addition tot he schedule given in this MRP:

When bypassing occurs from any primary or secondary treatment(s), representative samples for each 24-hour increment of the bypass discharge shall be collected for the duration of the bypass event for all pollutants with effluent limits. Continuous monitoring shall be conducted for flow and pH. Monitoring for residual chlorine shall be conducted every two hours, and daily grab samples shall be collected for temperature and total coliform. Monitoring location E-001 shall be used for flow measurements; monitoring location E-001-DC shall be used for toxic substances and chlorine residual; and monitoring location E-001-D2 shall be used for pH, temperature, and total coliform.

Modify Section F.4 as follows:

**Self-Monitoring Reports**

[Add the following to the beginning of the first paragraph]

For each calendar month, a self-monitoring report (SMR) shall be submitted to the Regional Water Board in accordance with the requirements listed in Self-Monitoring Program, Part A. The purpose of the report is to document treatment performance, effluent quality and compliance with waste discharge requirements prescribed by this Order, as demonstrated by the monitoring program data and the Dischargers' operation practices.

[And add at the end of Section F.4 the following:]

g. If the Discharger wishes to invalidate any measurement, the letter of transmittal will include identification of the measurement suspected to be invalid and notification of intent to submit, within 60 days, a formal request to invalidate the measurement, the original measurement in question, the reason for invalidating the measurement, all relevant documentation that supports the invalidation (e.g., laboratory sheet, log entry, test results, etc.), and discussion of the corrective actions taken or planned (with a time schedule for completion), to prevent recurrence of the sampling or measurement problem. The invalidation of a measurement requires the approval of Water Board staff and will be based solely on the documentation submitted at that time.

h. Reporting Data in Electronic Format

The Dischargers have the option to submit all monitoring results in an electronic reporting format approved by the Executive Officer. If the Dischargers choose to submit SMRs electronically, the following shall apply:

1) Reporting Method: The Dischargers shall submit SMRs electronically via the process approved by the Executive Officer in a letter dated December 17, 1999, Official Implementation of Electronic Reporting System (ERS) and in the Progress Report letter dated December 17, 2000, or in a subsequently approved format that the Permit has been modified to include.

2) Monthly or Quarterly Reporting Requirements: For each reporting period (monthly or quarterly as specified in SMP Part B), an electronic SMR shall be submitted to the Regional Water Board in accordance with Section F.4.a-g. above. However, until USEPA approves the electronic signature or other signature technologies, Dischargers that are using the ERS must submit a hard copy of the original transmittal letter, an ERS printout of the data sheet, a violation report, and a receipt of the electronic transmittal.

3) Annual Reporting Requirements: Dischargers who have submitted data using the ERS for at least one calendar year are exempt from submitting an annual report

electronically, but a hard copy of the annual report shall be submitted according to Section F.5 below.

## XII. REPORTING REQUIREMENTS

### A. General Monitoring and Reporting Requirements

The Dischargers shall comply with all Standard Provisions (Attachments D and G) related to monitoring, reporting, and recordkeeping, except as otherwise specified below.

### B. Self Monitoring Reports (SMRs)

1. At any time during the term of this Order, the State or Regional Water Board may notify the Dischargers to electronically submit self-monitoring reports. Until such notification is given, the Dischargers shall submit self-monitoring reports in accordance with the requirements described below.

2. The Dischargers shall submit monthly Self-Monitoring Reports including the results of all required monitoring using USEPA-approved test methods or other test methods specified in this Order for each calendar month. Monthly SMRs shall be due on the 30$^{th}$ day following the end of each calendar month, covering samples collected during that calendar month; Annual reports shall be due on February 1 following each calendar year.

3. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule as given in Table E-6:

**Table E-6. Monitoring Period**

| Sampling Frequency | Monitoring Period Begins On… | Monitoring Period |
|---|---|---|
| Continuous | Day after permit effective date | All |
| 1 / day | Day after permit effective date | (Midnight through 11:59 PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling. |
| 1 / week<br>2 / week<br>3 / week | Sunday following permit effective date or on permit effective date if on a Sunday | Sunday through Saturday |
| 1 / month | First day of calendar month following permit effective date or on permit effective date if that date is first day of the month | 1st day of calendar month through last day of calendar month |
| 1 / quarter | Closest of January 1, April 1, July 1, or October 1 following (or on) permit effective date | January 1 through March 31<br>April 1 through June 30<br>July 1 through September 30<br>October 1 through December 31 |
| 1 / year | Closest of May 1 or November 1 following (or on) permit effective date | Alternate between once during November 1 through April 30 (one year), and once during May 1 through October 31 (following year) |
| 2 / year | Closest of May 1 or November 1 following (or on) permit effective date | One during November 1 through April 30<br>One during May 1 through October 31 |
| Each Occurrence | Anytime during the discharge event or as soon as possible after aware of the event | At a time which sampling can characterize the discharge event |

4. The Dischargers shall report with each sample result the applicable Minimum Level (ML) or Reporting Level (RL) and the current Method Detection Limit (MDL), as determined by the procedure in 40 CFR §136.

   The Dischargers shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

   a. Sample results greater than or equal to the RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).

   b. Sample results less than the RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

      For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc."). The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical

estimates of data quality may be percent accuracy (+ a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

c. Sample results less than the laboratory's MDL shall be reported as "Not Detected," or ND. In the ERS, the MDL is to be reported and a qualifier of "<" may be reported.

d. The Dischargers shall instruct laboratories to establish calibration standards so that the RL value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. The Dischargers shall not use analytical data derived from extrapolation beyond the lowest point of the calibration curve.

5. The Dischargers shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with interim and/or final effluent limitations.

6. The Dischargers shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of the WDRs; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.

7. SMRs must be submitted to the Regional Water Board, signed and certified as required by the standard provisions (Attachment D), to the address shown below:

   Executive Officer
   California Regional Water Quality Control Board
   San Francisco Bay Region
   1515 Clay Street, Suite 1400
   Oakland, CA 94612
   ATTN: NPDES Division

8. The Dischargers have the option to submit all monitoring results in an electronic reporting format approved by the Executive Officer. The Electronic Reporting System (ERS) format includes, but is not limited to, a transmittal letter, summary of violation details and corrective actions, and transmittal receipt. If there are any discrepancies between the ERS requirements and the "hard copy" requirements listed in the MRP, then the approved ERS requirements supersede.

**D. Discharge Monitoring Reports (DMRs)**

1. As described in Section X.C.1 above, at any time during the term of this permit, the State or Regional Water Board may notify the Dischargers to electronically submit self-monitoring reports. Until such notification is given, the Dischargers shall submit discharge monitoring reports (DMRs) in accordance with the requirements described below.

2. DMRs must be signed and certified as required by the standard provisions (Attachment D). The Discharge shall submit the original DMR and one copy of the DMR to the address listed below:

   If by standard mail:

   Division of Water Quality
   c/o DMR Processing Center
   P.O. Box 100
   Sacramento, CA 95812-1000

   Or if by FedEx, UPS, or other private carrier:

   Division of Water Quality
   c/o DMR Processing Center
   1001 I Street, 15th Floor
   Sacramento, CA 95814

3. All discharge monitoring results must be reported on the official USEPA pre-printed DMR forms (EPA Form 3320-1). Forms that are self-generated or modified cannot be accepted.

## Appendix E-1

## CHRONIC TOXICITY

## DEFINITION OF TERMS AND SCREENING PHASE REQUIREMENTS

**I. Definition of Terms**

A. No observed effect level (NOEL) for compliance determination is equal to $IC_{25}$ or $EC_{25}$. If the $IC_{25}$ or $EC_{25}$ cannot be statistically determined, the NOEL shall be equal to the NOEC derived using hypothesis testing.

B. Effective concentration (EC) is a point estimate of the toxicant concentration that would cause an adverse effect on a quantal, "all or nothing," response (such as death, immobilization, or serious incapacitation) in a given percent of the test organisms. If the effect is death or immobility, the term lethal concentration (LC) may be used. EC values may be calculated using point estimation techniques such as probit, logit, and Spearman-Karber. $EC_{25}$ is the concentration of toxicant (in percent effluent) that causes a response in 25 percent of the test organisms.

C. Inhibition concentration (IC) is a point estimate of the toxicant concentration that would cause a given percent reduction in a nonlethal, nonquantal biological measurement, such as growth. For example, an $IC_{25}$ is the estimated concentration of toxicant that would cause a 25 percent reduction in average young per female or growth. IC values may be calculated using a linear interpolation method such as USEPA's Bootstrap Procedure.

D. No observed effect concentration (NOEC) is the highest tested concentration of an effluent or a toxicant at which no adverse effects are observed on the aquatic test organisms at a specific time of observation. It is determined using hypothesis testing.

II. Chronic Toxicity Screening Phase Requirements

A. The Dischargers shall perform screening phase monitoring:

1. Subsequent to any significant change in the nature of the effluent discharged through changes in sources or treatment, except those changes resulting from reductions in pollutant concentrations attributable to source control efforts, or

2. Prior to permit reissuance. Screening phase monitoring data shall be included in the NPDES permit application for reissuance. The information shall be as recent as possible, but may be based on screening phase monitoring conducted within 5 years before the permit expiration date.

B. Design of the screening phase shall, at a minimum, consist of the following elements:

1. Use of test species specified in Tables 1 and 2 (attached), and use of the protocols referenced in those tables, or as approved by the Executive Officer.

2. Two stages:

a. Stage 1 shall consist of a minimum of one battery of tests conducted concurrently. Selection of the type of test species and minimum number of tests shall be based on Table 3 (attached).

b. Stage 2 shall consist of a minimum of two test batteries conducted at a monthly frequency using the three most sensitive species based on the Stage 1 test results and as approved by the Executive Officer.

3. Appropriate controls.

4. Concurrent reference toxicant tests.

## Appendix E-2

## SUMMARY OF TOXICITY TEST SPECIES REQUIREMENTS

### Critical Life Stage Toxicity Tests for Estuarine Waters

| Species | (Scientific Name) | Effect | Test Duration | Reference |
|---|---|---|---|---|
| Alga | *(Skeletonema costatum)* *(Thalassiosira pseudonana)* | Growth rate | 4 days | 1 |
| Red alga | *(Champia parvula)* | Number of cystocarps | 7–9 days | 3 |
| Giant kelp | *(Macrocystis pyrifera)* | Percent germination; germ tube length | 48 hours | 2 |
| Abalone | *(Haliotis rufescens)* | Abnormal shell development | 48 hours | 2 |
| Oyster<br>Mussel | *(Crassostrea gigas)*<br>*(Mytilus edulis)* | Abnormal shell development; percent survival | 48 hours | 2 |
| Echinoderms - Urchins<br><br>Sand dollar | *(Strongylocentrotus purpuratus, S. franciscanus)*<br>*(Dendraster excentricus)* | Percent fertilization | 1 hour | 2 |
| Shrimp | *(Mysidopsis bahia)* | Percent survival; growth | 7 days | 3 |
| Shrimp | *(Holmesimysis costata)* | Percent survival; growth | 7 days | 2 |
| Topsmelt | *(Atherinops affinis)* | Percent survival; growth | 7 days | 2 |
| Silversides | *(Menidia beryllina)* | Larval growth rate; percent survival | 7 days | 3 |

**Toxicity Test References:**

1. American Society for Testing Materials (ASTM). 1990. Standard Guide for Conducting Static 96-Hour Toxicity Tests with Microalgae. Procedure E 1218-90. ASTM, Philadelphia, PA.
2. Short-term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to West Coast Marine and Estuarine Organisms. EPA/600/R-95/136. August 1995.
3. Short-term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to Marine and Estuarine Organisms. EPA/600/4-90/003. July 1994.

### Critical Life Stage Toxicity Tests for Fresh Waters

| Species | (Scientific Name) | Effect | Test Duration | Reference |
|---|---|---|---|---|
| Fathead minnow | *(Pimephales promelas)* | Survival; growth rate | 7 days | 4 |
| Water flea | *(Ceriodaphnia dubia)* | Survival; number of young | 7 days | 4 |
| Alga | *(Selenastrum capricornutum)* | Cell division rate | 4 days | 4 |

**Toxicity Test Reference:**

4. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, third edition. EPA/600/4-91/002. July 1994.

## Toxicity Test Requirements for Stage One Screening Phase

| Requirements | Receiving Water Characteristics | | |
|---|---|---|---|
| | Discharges to Coast | Discharges to San Francisco Bay[2] | |
| | Ocean | Marine/Estuarine | Freshwater |
| Taxonomic diversity | 1 plant<br>1 invertebrate<br>1 fish | 1 plant<br>1 invertebrate<br>1 fish | 1 plant<br>1 invertebrate<br>1 fish |
| Number of tests of each salinity type: Freshwater[1]<br>Marine/Estuarine | 0<br>4 | 1 or 2<br>3 or 4 | 3<br>0 |
| Total number of tests | 4 | 5 | 3 |

[1] The freshwater species may be substituted with marine species if:

(a) The salinity of the effluent is above 1 part per thousand (ppt) greater than 95 percent of the time, or

(b) The ionic strength (TDS or conductivity) of the effluent at the test concentration used to determine compliance is documented to be toxic to the test species.

[2] (a) Marine/Estuarine refers to receiving water salinities greater than 1 ppt at least 95 percent of the time during a normal water year.

(b) Fresh refers to receiving water with salinities less than 1 ppt at least 95 percent of the time during a normal water year.

# ATTACHMENT F – FACT SHEET

As described in Section II of this Order, this Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order.

This Order has been prepared under a standardized format to accommodate a broad range of discharge requirements for dischargers in California. Only those sections or subsections of this Order that are specifically identified as "not applicable" have been determined not to apply to these Dischargers. Sections or subsections of this Order not specifically identified as "not applicable" are fully applicable to these Dischargers.

## I. PERMIT INFORMATION

The following table summarizes administrative information related to the facility.

**Table F-1. Facility Information**

| | |
|---|---|
| **WDID** | 2 071107001 |
| **Dischargers** | 1. West County Agency (WCA), including its member agencies<br>2. West County Wastewater District (WCWD), and<br>3. City of Richmond<br>4. Richmond Municipal Sewer District (RMSD) |
| **Name of Facilities** | 1. West County Agency Common Outfall<br>2. WCWD Treatment Plant and Its Collection System,<br>3. RMSD Water Pollution Control Plant No. 1 and Its Collection Sytem |
| **Facility Addresses** | 1.2910 Hilltop Drive 2. 2377 Garden Tract Road 3. 601 Canal Boulevard<br>Richmond, CA 94806 Richmond, CA 94801 Richmond, CA 94804<br>Contra Costa County Contra Costa County Contra Costa County |
| **Discharger Contacts, Titles, Phones** | 1&2. E.J. Shalaby, WCA Manager, 510-222-6700<br>3&4. Rich Davidson, City Engineer and contact for RMSD, 510-307-8105 |
| **Authorized Person to Sign and Submit Reports** | 1&2. E.J. Shalaby<br>3&4. Rich Davidson |
| **Mailing Address** | 1.2910 Hilltop Drive 2. 2910 Hilltop Drive 3. 1401 Marina Way S.<br>Richmond, CA 94806 Richmond, CA 94806 Richmond, CA 94804 |
| **Billing Address** | Same as Mailing Addresses |
| **Type of Facilities** | Wastewater Treatment Plants |
| **Major or Minor Facility** | Major |
| **Threat to Water Quality** | 1 |
| **Complexity** | A |
| **Pretreatment Program** | Yes |
| **Reclamation Requirements** | Not Applicable |
| **Facility Permitted Flow** | 2. 12.5 million gallons per day (MGD)<br>3. 16.0 MGD |
| **Facility Design Flow** | 2. 12.5 MGD<br>3. 16.0 MGD |
| **Watershed** | San Francisco Bay |
| **Receiving Water** | Central San Francisco Bay |
| **Receiving Water Type** | Marine |

A. West County Agency (WCA) is a Joint Powers Agency whose members are West County Wastewater District (WCWD), the City of Richmond, and Richmond Municipal Sewer District No. 1 (RMSD). WCWD owns and operates the WCWD Treatment Plant (WCWD plant) located at 2377 Garden Tract Road, Richmond, Contra Costa County, California. The City of Richmond and RMSD own and operate RMSD Water Pollution Control Plant No. 1 (Richmond plant) located at 601 Canal Boulevard, Richmond, Contra Costa County. Together, WCA, WCWD, the City of Richmond, and RMSD are hereinafter referred to as Dischargers.

B. These facilities discharge wastewater to the Central San Francisco Bay, a water of the United States, and they are currently regulated by Order No. 01-144 and NPDES Permit No. CA0038539, which was adopted on November 28, 2001, and expired on November 28, 2006.

C. The Dischargers filed a report of waste discharge and submitted an application for renewal of their Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit on May 3, 2006.

## II. FACILITY DESCRIPTION

### A. Description of Wastewater Treatment or Controls

1. The Dischargers own and operate two municipal wastewater treatment facilities which provide secondary level treatment for domestic and industrial wastewater from the City of Richmond and surrounding areas.

2. The Dischargers' collection systems include about 436 miles of gravity sewer, 11 miles of force main, and 29 pump stations. WCWD has about 249 miles of gravity sewer and 11 miles of force main with 17 pump stations. RMSD has about 187 miles of sewer line with 12 pump stations. The State Water Board on May 2, 2006, adopted Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, Order No. 2006-0003-DWQ. The Dischargers' collection systems are subject to the requirements of 2006-0003-DWQ.

3. Raw influent entering the Dischargers' plants is treated by primary sedimentation, biological treatment, secondary clarification, chlorination and dechlorination. The wastewater treatment processes at the WCWD plant consist of bar screens, an aerated grit chamber, primary clarifiers, roughing filters, aeration basins, secondary clarifiers, and chlorine contact basins. The wastewater treatment processes at the Richmond plant consist of bar screens, grit removal chambers, primary clarifiers, activated sludge basins, secondary clarifiers, and chlorine contact basins. Treated wastewater from the WCWD plant is transported to the Richmond plant for dechlorination and discharge. The treated wastewater from the Richmond plant is combined with the effluent from the WCWD plant where it is dechlorinated and then discharged through a deep-water outfall into central San Francisco Bay.

## B. Discharge Point and Receiving Waters

1. Treated wastewater is currently discharged 4700 feet offshore at a depth of about 26 feet into the Central San Francisco Bay. The effluent receives an initial dilution of at least 10:1 at all times as required by the Basin Plan.

**Table F-2. Outfall Location**

| Discharge Point | Effluent Description | Discharge Point Latitude | Discharge Point Longitude | Receiving Water |
|---|---|---|---|---|
| 001 | Secondary treated POTW wastewater | 37 °, 54', 47" N | 122 °, 25', 06" W | Central San Francisco Bay |

2. Storm Water Discharges

Regulations applicable to storm water discharges were promulgated by the U.S. EPA on November 19, 1990. The regulations (40 CFR Parts 122 – 124) require specific categories of industrial activity (industrial storm water) to obtain an NPDES permit and to implement Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technology (BCT) to control pollutants in industrial storm water discharges. Both the WCWD plant and the Richmond plant route all storm water runoff to the headworks.

## C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data

Effluent limitations contained in the previous permit (Order No. 01-144) for discharges to the Central San Francisco Bay and representative monitoring data from the term of the previous permit for conventional pollutants are as follows.

**Table F-3. Historic Conventional Effluent Limitations and Monitoring Data**

| Parameter | Units | Effluent Limitations | | | | Data (from January 2003 to December 2006) |
|---|---|---|---|---|---|---|
| | | Monthly Average | Weekly Average | Daily Maximum | Instantaneous Maximum | Range of Reported Values |
| Biochemical Oxygen Demand (BOD)[1] | mg/L | 30 | 45 | 60 | -- | 2-98 |
| Total Suspended Solids[2] | mg/L | 30 | 45 | 60 | -- | 1-3640 |
| Oil and Grease | mg/L | 10 | -- | 20 | -- | 1-23 |
| Settleable Matter | ml/L-hr | 0.1 | -- | 0.2 | -- | 0.05-1.5 |
| Total Chlorine Residual[3] | mg/L | -- | -- | -- | 0.0 | 0-2.25 |
| pH | Units | | | | [4] | 6-7.8 |
| Total Coliforms | MPN/100 ml | -- | -- | -- | [5] | 2-16,000 |
| Acute Toxicity | % survival | -- | -- | -- | [6] | 60-100 |
| Chronic Toxicity | TUc | -- | -- | -- | -- | 3.3-27.8 |

(1) Section B.1.a of Order No. 01-144 requires compliance with BOD or CBOD effluent limitations.

(2) The arithmetic mean of BOD and TSS values, for effluent samples collected in each calendar month shall not exceed 15 percent of the arithmetic mean for influent samples collected at approximately the same times during the same period.

(3) Requirement defined as below the limit of detection in standard test methods defined in the latest edition of *Standard Methods for the Examination of Water and Wastewater*. The Dischargers may elect to use a continuous on-line monitoring system(s) for measuring flows, chlorine, and sodium bisulfate dosage (including a safety factor) and concentration to prove that chlorine residual exceedances are false positives. If convincing evidence is provided, Regional Water Board staff will conclude that these false positive chlorine residual exceedances are not violations of the permit limit.

(4) The pH of the effluent shall not exceed 9.0 nor be less than 6.0. The Dischargers shall be in compliance with the pH limitation specified herein, provided that both of the following conditions are satisfied; 1) the total time during which the pH values are outside the required range of pH values shall not exceed 7 hours and 26 minutes in any calendar month; and 2) no individual excursion from the range of pH value shall exceed 60 minutes.

(5) The moving median value of total coliform bacteria in five (5) consecutive samples shall not exceed 240 MPN/100 ml; and no single sample shall exceed 10,000 MPN/100 ml.

(6) The survival of bioassay test organisms in 96-hour bioassays of undiluted effluent shall be: 1) an 11-sample median value of not less than 90 percent survival; and 2) an 11-sample 90$^{th}$ percentile value of not les than 70 percent survival.

Effluent limitations contained in the previous permit (Order No. 01-144) for discharges to the Central San Francisco Bay and representative monitoring data from the term of the previous permit for toxic pollutants are as follows.

**Table F-4. Historic Toxic Substances Effluent Limitations and Monitoring Data**

| Parameter | Units | Water Quality-Based Effluent Limits (WQBELs) | | Interim Limits | | Monitoring Data (From January 2003 to December 2006) |
|---|---|---|---|---|---|---|
| | | Average Monthly | Maximum Daily | Average Monthly | Maximum Daily | Highest Daily Average |
| Copper | µg/L | | | | 17 | 15 |
| Mercury | µg/L | | | 0.087 | | 0.032 |
| Nickel | µg/L | 34 | 59 | | | 13 |
| Selenium | µg/L | | | | 17 | 9 |
| Zinc | µg/L | 490 | 720 | | | 52 |
| Cyanide | µg/L | | | | 25 | 13 |
| Dioxin-TEQ | pg/L | | | 0.14 | | 0.0031 |
| Dieldrin | µg/L | 0.00014 | 0.00028 | | | ND (<0.002) |
| 4,4-DDE | µg/L | 0.00059 | 0.0012 | | | ND (<0.003) |

## D. Compliance Summary

### 1. Compliance with Numeric Effluent Limits.

Permit exceedances were observed during the permit term and are summarized in Table F-5 below. In addition to these violations, the Richmond plant does not monitor influent flow at A-002, which is a violation of the monitoring and reporting program. The Regional Water Board staff has prepared a complaint assessing Mandatory Minimum Penalties (MMPs) for the numeric effluent limit violations. The influent flow metering requirement is addressed in a concurrent Cease and Desist Order (CDO). The Regional Water Board plans to consider the MMP complaint and the CDO at the same public hearing for this Order.

Most of these violations were caused by problems at the Richmond plant. According to the City of Richmond's Wet Weather No Feasible Alternatives Analysis, the City of Richmond has spent approximately $22 million in capitol improvement projects since June 2002. A new mechanical bar screen was installed and the primary clarifiers received a major structural rehabilitation. The biological treatment system received new mechanical aerators, new pumps, valves, and piping. Secondary clarifiers No. 1 and No. 2 received a major rehabilitation in 2005 and 2006. These plant upgrades appear to have solved the problems because effluent violations have decreased since these improvements were implemented.

**Table F-5. Compliance Summary**

| Parameter | Type of Limit | Date of Violation | Permit Limit | Reported Value |
|---|---|---|---|---|
| BOD | Weekly Average | January 2, 2002 | 45 max | 61 |
| BOD | Weekly Average | January 6, 2002 | 45 max | 58.7 |
| BOD | Weekly Average | January 13, 2002 | 45 max | 87 |
| BOD | Weekly Average | January 27, 2002 | 45 max | 98 |
| BOD | Weekly Average | January 31, 2002 | 45 max | 68.2 |
| BOD | Monthly % Removal | January 31, 2002 | 85 min | 56.1 |
| BOD | Weekly Average | February 2, 2002 | 45 max | 48.8 |
| BOD | Weekly Average | February 24, 2002 | 45 max | 51 |
| BOD | Monthly Average | February 28, 2002 | 30 max | 41.7 |
| BOD | Weekly Average | March 10, 2002 | 45 max | 46.7 |
| BOD | Monthly Average | March 31, 2002 | 30 max | 35.2 |
| BOD | Monthly % Removal | March 31, 2002 | 85 min | 84.3 |
| Copper | Daily Maximum | March 6, 2002 | 17 max | 18.3 |
| BOD | Weekly Average | April 1, 2002 | 45 max | 82 |
| BOD | Weekly Average | April 7, 2002 | 45 max | 99 |
| BOD | Weekly Average | April 21, 2002 | 45 max | 67.3 |
| BOD | Monthly Average | April 30, 2002 | 30 max | 69.9 |
| BOD | Monthly % Removal | April 30, 2002 | 85 min | 75 |
| BOD | Weekly Average | May 5, 2002 | 45 max | 54.3 |
| BOD | Weekly Average | June 9, 2002 | 45 max | 52 |
| BOD | Weekly Average | June 16, 2002 | 45 max | 53.7 |
| Total Coliform | Daily Maximum | June 19, 2002 | 10000 max | 16000 |
| BOD | Weekly Average | July 21, 2002 | 45 max | 57.7 |
| BOD | Weekly Average | August 1, 2002 | 45 max | 70.6 |
| BOD | Weekly Average | August 4, 2002 | 45 max | 74 |
| Chlorine Residual | Instantaneous Maximum | August 6, 2002 | 0 | positive |
| Chlorine Residual | Instantaneous Maximum | August 7, 2002 | 0 | positive |
| BOD | Weekly Average | August 11, 2002 | 45 max | 47.7 |
| BOD | Weekly Average | August 28, 2002 | 45 max | 74.7 |
| BOD | Monthly Average | August 30, 2002 | 30 max | 61.8 |
| BOD | Weekly Average | September 1, 2002 | 45 max | 63.3 |
| Chlorine Residual | Instantaneous Maximum | September 12, 2002 | 0 | 1.3 |
| Total Coliform | 5 Sample Moving Median | May 28, 2003 | 240 max | 280 |
| Total Coliform | 5 Sample Moving Median | June 2, 2003 | 240 max | 280 |
| Total Coliform | 5 Sample Moving Median | June 3, 2003 | 240 max | 300 |
| Total Coliform | 5 Sample Moving Median | June 4, 2003 | 240 max | 300 |
| Total Coliform | 5 Sample Moving Median | June 10, 2003 | 240 max | 300 |
| Total Coliform | Daily Maximum | February 25, 2004 | 10000 | 16000 |
| Chlorine Residual | Instantaneous Maximum | April 21, 2004 | 0 | 2 |
| Chlorine Residual | Instantaneous Maximum | May 26, 2004 | 0 | 0.29 |
| TSS | Monthly % Removal | May 31, 2004 | 85 min | 84 |
| TSS | Monthly Average | August 31, 2004 | 30 max | 31.3 |
| BOD | Weekly Average | September 4, 2004 | 45 max | 54 |

| | | | | |
|---|---|---|---|---|
| Chronic Toxicity | Daily Maximum | June 6, 2005 | 10 max | 27.8 |
| TSS | Weekly Average | December 3, 2005 | 45 max | 71 |
| TSS | Monthly Average | December 31, 2005 | 30 max | 45.1 |
| Oil and Grease | Daily Maximum | February 27, 2006 | 20 max | 23 |
| Oil and Grease | Monthly Average | February 28, 2006 | 10 max | 14 |
| Settleable Solids | Daily Maximum | March 14, 2006 | 0.2 max | 1.5 |
| Chlorine Residual | Instantaneous Maximum | March 15, 2006 | 0 | 2.25 |
| Settleable Solids | Monthly Average | March 31, 2006 | 0.1 max | 0.2 |
| BOD | Weekly Average | July 1, 2006 | 45 max | 54.3 |
| TSS | Weekly Average | July 1, 2006 | 45 max | 47.4 |
| Settleable Solids | Daily Maximum | August 29, 2006 | 0.2 max | 1.2 |
| TSS | Monthly Average | August 31, 2006 | 30 max | 30.8 |
| Settleable Solids | Monthly Average | August 31, 2006 | 0.1 max | 1.2 |
| TSS | Monthly Average | September 30, 2006 | 30 max | 32.3 |

## 2. Compliance with Permit Provisions.

A list of special activities required in the provisions for Order No. 01-144, and the status of completion, is shown in Table F-6 below.

**Table F-6. Status of Special Activities in Provisions for Order No. 01-144**

| Provision No. | Description of Activity | Status of Completion |
|---|---|---|
| 2 | Mercury Source Control and Reduction Program – 60 days following a violation of a mass emission limit for mercury, the Dischargers were required to develop a source control and pollution prevention program to identify sources and evaluate options for control and reduction of mercury loadings. | No mercury exceedances reported during the term of the permit. |
| 3 | Cyanide Study – Requires the Dischargers to participate in a regional effort to conduct a study for cyanide data collection and development of site-specific objectives. | BACWA completed the study. West County Agency is a member of BACWA. |
| 4 | Effluent Characterization for Selected Constituents – Requires the Dischargers to monitor and evaluate certain constituents pursuant to the Regional Water Board's August 6, 2001 letter. An interim report was due on May 18, 2003 and a final report was due 180 days prior to permit expiration. | The Dischargers have complied with this provision. |
| 5 | Ambient Background Receiving Water Study – Requires the Dischargers to collect or participate in collecting ambient receiving water data. | BACWA has completed the study on behalf of the Dischargers. |
| 6 | Pollutant Minimization Plan (PMP) – Requires the Dischargers to continue to improve their PMPs to reduce pollutant loadings to its treatment plants. Annual reports are required. | The Dischargers have complied with this provision. |
| 14 | Wastewater Facilities, Review and Evaluation, and Status Reports – Annually, the Dischargers shall submit a report describing the current status of its wastewater facility review and evaluation. This report shall include a description or summary of review and evaluation procedures, and applicable wastewater facility programs or capital improvement projects. | Annual status reports were submitted. |

| | | |
|---|---|---|
| 15 | Operations and Maintenance Manual, Review and Status Reports – The Dischargers were required to submit annual reports to the Regional Water Board describing the current status of its operations and maintenance manual review and updating. This report is to include estimated time schedules for completion of any revisions determined necessary, a description of any competed revisions, or a statement that no revisions were needed. | Annual status reports were submitted. |
| 16 | Contingency Plan, Review and Status Reports – The Dischargers were required to submit an annual report describing the current status of its Contingency Plan review and update. This report should include a description or copy of any completed revisions, or a statement that no changes are needed. | While not submitted in the annual status reports, the Contingency Plan is available on site. |

## III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in the proposed Order are based on the requirements and authorities described in this section.

### A. Legal Authorities

This Order is issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (USEPA) and chapter 5.5, division 7 of the California Water Code (commencing with section 13370). It shall serve as a NPDES permit for point source discharges from this facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the Water Code (commencing with section 13260).

### B. California Environmental Quality Act (CEQA)

Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA, Public Resources Code sections 21100 through 21177.

### C. State and Federal Regulations, Policies, and Plans

#### 1. Water Quality Control Plans

The Regional Water Board adopted a *Water Quality Control Plan for the San Francisco Bay Basin* (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, the Basin Plan implements State Water Resources Control Board (State Water Board) Resolution No. 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. Because of the marine influence on receiving waters of San Francisco Bay, total dissolved solids levels in the Bay commonly (and often significantly) exceed 3000 mg/L and thereby meet an exemption to State Water Board Resolution No. 88-63. Therefore, the MUN designation is not applicable to Central San Francisco Bay. Beneficial uses applicable to Central San Francisco Bay are as follows:

**Table F-3. Basin Plan Beneficial Uses of Central San Francisco Bay**

| Discharge Point | Receiving Water Name | Beneficial Use(s) |
|---|---|---|
| E-001-DC | Central San Francisco Bay | Ocean Commercial and Sport Fishing (COMM)<br>Estuarine Habitat (EST)<br>Industrial Service Supply (IND)<br>Fish Migration (MIGR), Navigation (NAV)<br>Industrial Process Water Supply (PROC)<br>Preservation of Rare and Endangered Species (RARE)<br>Water Contact Recreation (REC1)<br>Non-contact Water Recreation (REC2)<br>Shellfish Harvesting (SHELL)<br>Fish Spawning (SPWN)<br>Wildlife Habitat (WILD) |

Requirements of this Order implement the Basin Plan.

**2. Thermal Plan**

The State Water Board adopted a *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Water and Enclosed Bays and Estuaries of California* (Thermal Plan) on May 18, 1972, and amended this plan on September 18, 1975. This plan contains temperature objectives for surface waters. Requirements of this Order implement the Thermal Plan.

**3. National Toxics Rule (NTR) and California Toxics Rule (CTR)**

USEPA adopted the NTR on December 22, 1992, and later amended it on May 4, 1995 and November 9, 1999. About forty criteria in the NTR applied in California. On May 18, 2000, USEPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on February 13, 2001. These rules contain water quality criteria for priority pollutants.

**4. State Implementation Policy**

On March 2, 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on April 28, 2000 with respect to the priority pollutant criteria promulgated for California by the USEPA through the NTR and to the priority pollutant objectives established by the Regional Water Board in the Basin Plan. The SIP became effective on May 18, 2000 with respect to the priority pollutant criteria promulgated by the USEPA through the CTR. The State Water Board adopted amendments to the SIP on February 24, 2005 that became effective on July 13, 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order

implement the SIP.

**5. Alaska Rule**

On March 30, 2000, USEPA revised its regulation that specifies when new and revised state and tribal water quality standards (WQS) become effective for CWA purposes. [40 C.F.R. § 131.21; 65 Fed. Reg. 24641 (April 27, 2000)]. Under the revised regulation (also known as the Alaska Rule), new and revised standards submitted to USEPA after May 30, 2000, must be approved by USEPA before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by May 30, 2000 may be used for CWA purposes, whether or not approved by USEPA.

**6. Antidegradation Policy**

Section 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. The permitted discharge must be consistent with the antidegradation provision of section 131.12 and State Water Board Resolution No. 68-16.

**7. Anti-Backsliding Requirements**

Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at title 40, Code of Federal Regulations[2] section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed.

**D. Impaired Water Bodies on CWA 303(d) List**

On June 6, 2003, the USEPA approved a revised list of impaired water bodies prepared by the State [hereinafter referred to as the 303(d) list], prepared pursuant to provisions of CWA section 303(d) requiring identification of specific water bodies where it is expected that water quality standards will not be met after implementation of technology-based effluent limitations on point sources. Central San Francisco Bay is listed as an impaired waterbody. The pollutants impairing Central San Francisco Bay include chlordane, DDT, diazinon, dieldrin, dioxin compounds, exotic species, furan compounds, mercury, PCBs, dioxin-like PCBs, and selenium. The SIP requires final effluent limitations for all 303(d)-listed pollutants to be based on total maximum daily loads and associated waste load allocations.

**1. Total Maximum Daily Loads**

The Regional Water Board plans to adopt total maximum daily loads (TMDLs) for



[2] All further statutory references are to title 40 of the Code of Federal Regulations unless otherwise indicated.

pollutants on the 303(d) list in Central San Francisco Bay within the next 10 years. Future review of the 303(d)-list for Central San Francisco Bay may result in revision of the schedules or provide schedules for other pollutants.

**2. Waste Load Allocations**

The TMDLs will establish waste load allocations (WLAs) for point sources and load allocations (LAs) for non-point sources, and will result in achieving the water quality standards for the waterbodies. Final WQBELs for 303(d)-listed pollutants in this discharge will be based on WLAs contained in the respective TMDLs.

**3. Implementation Strategy**

The Regional Water Board's strategy to collect water quality data and to develop TMDLs is summarized below:

a. **Data Collection.** The Regional Water Board has given the Dischargers the option to collectively assist in developing and implementing analytical techniques capable of detecting 303(d)-listed pollutants to at least their respective levels of concern or WQOs/WQC. This collective effort may include development of sample concentration techniques for approval by the USEPA. The Regional Water Board will require dischargers to characterize the pollutant loads from their facilities into the water-quality limited waterbodies. The results will be used in the development of TMDLs, and may be used to update or revise the 303(d) list or change the WQOs/WQC for the impaired waterbodies including Central San Francisco Bay.

b. **Funding Mechanism.** The Regional Water Board has received, and anticipates continuing to receive, resources from Federal and State agencies for TMDL development. To ensure timely development of TMDLs, the Regional Water Board intends to supplement these resources by allocating development costs among dischargers through the RMP or other appropriate funding mechanisms.

**E. Other Plans, Policies and Regulations**

This Order is also based on the following plans, policies, and regulations:

1. The Federal *Water Pollution Control Act*, Sections 301 through 305, and 307, and amendments thereto, as applicable (CWA);

2. The State Water Board's March 2, 2000 *Policy for* the USEPA's May 18, 2000 *Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California* or CTR;

3. The USEPA's *Quality Criteria for Water* [EPA 440/5-86-001, 1986] and subsequent amendments (the USEPA Gold Book);

4. Applicable Federal Regulations [40 CFR §§ 122 and 131];

5. 40 CFR §131.36(b) and amendments [Federal Register Volume 60, Number 86, 4 May 1995, pages 22229-22237];

6. USEPA's December 10, 1998 National Recommended Water Quality Criteria compilation [Federal Register Vol. 63, No. 237, pp. 68354-68364];

7. USEPA's December 27, 2002 Revision of National Recommended Water Quality Criteria compilation [Federal Register Vol. 67, No. 249, pp. 79091-79095]; and

8. Guidance provided with State Water Board actions remanding permits to the Regional Water Board for further consideration.

## IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in the Code of Federal Regulations: section 122.44(a) requires that permits include applicable technology-based limitations and standards; and section 122.44(d) requires that permits include water quality-based effluent limitations to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water.

### A. Discharge Prohibitions

1. **Discharge Prohibition III.A. (no discharge other than that described in this Order):** This prohibition is the same as in the previous permit. This prohibition is based on California Water Code section 13260, which requires filing a Report of Waste Discharge before discharges can occur. Discharges not described in the ROWD, and subsequently in the Order, are prohibited.

2. **Discharge Prohibition III.B. (no discharges receiving less than 45:1 and 25:1 dilution):** This prohibition is similar to the previous permit. It is based on the Basin Plan and the previous permit, which concludes that an initial dilution of 45:1 is required to be protective of shellfish beds, except when Delta outflow is greater than 8000 cubic feet per second. According to the Dischargers' dilution study[3], an initial dilution of 45:1 may not be achieved during periods of greater Delta flow because effluent follows the pathway of the deeper water mass which is typically 10 feet or more below the surface. However, near-shore areas close to shellfish beds are typically six feet or less and thus receive some physical separation from the deeper water mass. The deeper water likely flows parallel to the depth contours rather than mixing laterally into the shallow mudflat areas. Because ammonia and cyanide limits are based on an initial dilution of 25:1, it is necessary to require that the Dischargers achieve this dilution at higher Delta flows.

[3] Evaluation of the initial dilution (45:1) requirement, San Pablo-Richmond Wastewater Outfall (1977). Jones & Stokes Associates and Brown and Caldwell Engineers.